Smaller and Faster: Using a Hand Held Computer to Support a Bedside Vascular Access Team

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Abstract: An application for a handheld computer was developed to support the Vascular Access team in an academic medical center. The development involved workflow analysis and usability testing centered on the end users. The application interfaced with the desktop to generate the documentation needed for the charts and to populate the database used to track productivity, volume, outcomes, etc. Post-implementation evaluations provided feedback to validate the utility of the system to support workflow of the team.

The University of Washington Medical Center Vascular Access Team is the focus of this project. They are a specially trained group of Registered Nurses who place, remove, repair, and troubleshoot Peripherally Inserted Central Catheters, verify placement of these lines from outside institutions and address difficult peripheral access issues through out the Medical Center.

They have been using several forms to direct and document their work as well as entering data into the Clinical Information System of the hospital. At a certain time each week, the team leader enters the data from the forms into an Excel spreadsheet so it can be used to assist with evaluations of performance, productivity, outcomes, etc. This data entry consumes 4 to 8 hours per week and, given the volume and complexity if their work, the hospital cannot afford the loss of 4-8 hours of clinical time to clerical duties. Further, some data collection has been deferred to ease the amount of upload time required.

The IOM report "Crossing the Quality Chasm," urges implementation of technology to ease the strain on nursing. It has been suggested that technology can also contribute to nurse recruitment and retention. It is also clear that information technology skills will be an ever-increasing part of nursing, so workgroups that possess these skills will be well equipped to adapt.

Nurse leaders in the literature believe the collection of nursing data will help define and articulate the role of nurses in health care and thus more clearly identify how nurses should be using their time. Thus, it is imperative to collect data for analysis and aggregation to further the impact that nursing exerts on patient care and outcomes.

To these ends, a handheld computer was introduced. The application was based on workflow analysis with team members. The training was based on current computer competencies and the application was refined at each step. This resulted in an interface that was logical to those using it. The handheld computer interfaced with the desktop to print chart records for each procedure, as well as populate the administrative database.

A post implementation evaluation of users and administrators validated the utility of the handheld computer to the function and oversight of the Vascular Access Team.

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